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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,641	09/05/2003	Shuit-Tong Lee	13896-0007	8111
25267	7590	03/30/2005	EXAMINER	
BOSE MCKINNEY & EVANS LLP 135 N PENNSYLVANIA ST SUITE 2700 INDIANAPOLIS, IN 46204			GARRETT, DAWN L	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/656,641

Applicant(s)

LEE ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. This Office action is responsive to the amendment dated December 30, 2004. Claims 1-3, 9, 10, and 18 were amended. Claims 1-21 are pending.
2. The objections set forth in the last Office action (mailed July 1, 2004) are withdrawn due to the amendment.
3. The rejection of claims 9 and 18 under 35 USC 112, second paragraph, set forth in the last Office action, paragraphs 3-6, is withdrawn due to the amendment.
4. The rejection of claims 1, 3-5, 8, and 10-12 under 35 USC 102(b) as being anticipated by Tang et al. (US 4,885,211) is withdrawn due to the amendment.
5. The rejection of claims 2, 6, and 9 under 35 USC 103(a) as being unpatentable over Tang et al. (US 4,885,211) is withdrawn due to the amendment.
6. The rejection of claim 7 under 35 USC 103(a) as being unpatentable over Tang et al. (US 4,885,211) in view of Lee et al. (US 2003/0082403) is withdrawn due to the amendment.
7. Claims 13-15 and 17-21 are again rejected under 35 USC 103(a) as being unpatentable over Yu et al. (US 2004/0094768 A1). Yu et al. teaches organic electroluminescent devices (see abstract). Yu et al. teaches the devices may include a cathode comprised of rare earth lanthanides and actinides as well as conductive metals such as aluminum or magnesium or a metal alloy. The cathode may be comprised of a multiple layer form with each layer containing a different metal or metal alloy composition (see par. 65). Although Yu et al. fails to exemplify a cathode comprising two layers with the innermost layer comprising the rare earth actinide or lanthanide element and the outermost layer comprising a conductive layer such as aluminum,

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magnesium or an alloy, it would have been obvious to one of ordinary skill in the art to have formed such a bi-layer cathode, because Yu et al. teaches all the required materials and also that multiple layers may be formed for the cathode. Such a bilayer configuration reads upon layer b) and layer c) of the device in claim 13. With regard to the fluoride layer a) between the organic electroluminescent layer and the rare earth metal layer b), Yu et al. teaches an un-patterned layer to facilitate electron injection/transport deposited prior to the cathode layer (see par. 63). The unpatterned layer may be comprised of lithium fluoride (LiF) per instant claims 14 and 15 (see par. 63). With regard to claim 17, Yu et al. specifically teaches cerium, samarium, europium as well as all lanthanides (see par. 65). The metals aluminum and magnesium as well as the alloys taught for the cathode read upon the elemental metals and metal alloys of claim 18 (see par. 65). Yu et al. teaches the use of glass as the substrate to support the device and teaches an ITO (indium tin oxide) coating on the glass as the anode per instant claims 19 and 20 (see ex. 13, par. 145). Per instant claim 21, Yu et al. teaches Alq as a component in the light emitting layer (see Table 4, page 7).

8. Claim 16 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (US 2004/0094768 A1) in view of Gotou (US 2003/0113581 A1). Yu et al. is relied upon as set forth above for the teaching of LiF as an electron transporting/injecting facilitating layer adjacent the cathode layer (see Yu et al. par. 63). Yu et al. fails to teach alkaline earth metal fluoride may be used as well as the alkali metal fluoride, LiF. Gotou teaches, in analogous art, organic electroluminescent devices. At paragraph 84, Gotou teaches lithium fluoride and magnesium fluoride as equivalent materials for forming an electron injecting layer in an organic electroluminescent device. It would have been obvious to one of ordinary skill in the art to have

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used magnesium fluoride in place of lithium fluoride as the electron injecting layer in the Yu et al. device, because Gotou teaches LiF and MgF<sub>2</sub> as equivalent materials for an electron injecting layer and one would have expected the Yu et al. device to operate similarly with the use of MgF<sub>2</sub> compared to a device using LiF.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is not seen where the disclosure describes an organic electroluminescent device comprising a cathode with an alkali fluoride or alkaline earth fluoride layer in combination with a rare earth metal or a rare earth metal alloy coevaporated with a conductive metal that is transparent. The only description of a transparent cathode in the disclosure is on page 8 at line 17. This citation describes a Yb : Ag cathode through which light can pass. The device discussed does not comprise a fluoride-containing compound layer. Accordingly, the transparent cathode as set forth in claim 1 is considered to be new matter.

***Response to Arguments***

11. Applicant's arguments filed December 30, 2004 with respect to claims 13-21 have been fully considered but they are not persuasive. Applicant argues "Yu deals with a different

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problem” than applicant addresses. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant further argues “there is simply no motivation or suggestion in Yu to assemble...elements and add others to arrive at Applicants’ specifically claimed trilayer structure.” In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The rejections over Yu et al. are respectfully maintained for the reasons of record.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571)272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Dawn Garrett  
Primary Examiner  
Art Unit 1774

D.G.  
March 22, 2005